(No Model.)

G. PEARCE & E. HUGHES.

METHOD OF AND APPARATUS FOR DRYING MATRICES FOR STEREOTYPE PLATES.

No. 296,049. Patented Apr. 1, 1884.

Fig. 4.

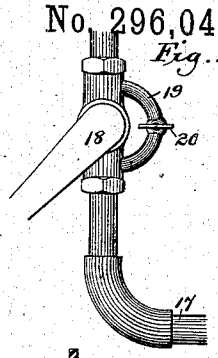


Fig. 3.

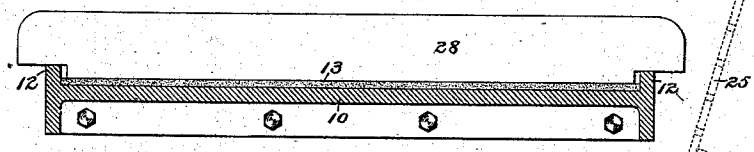


Fig. 2.

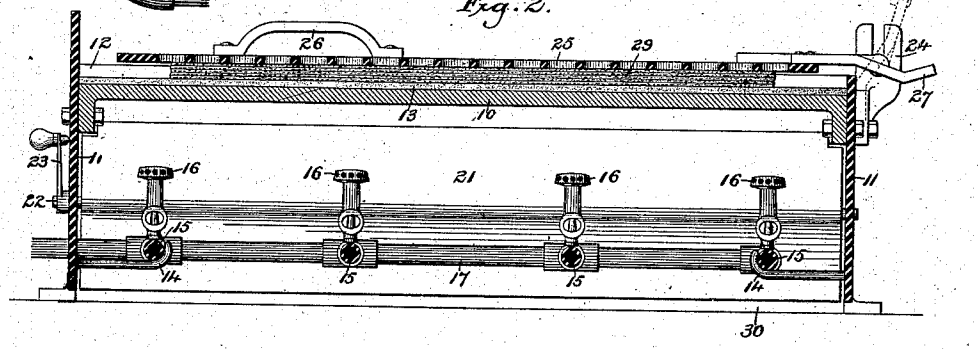
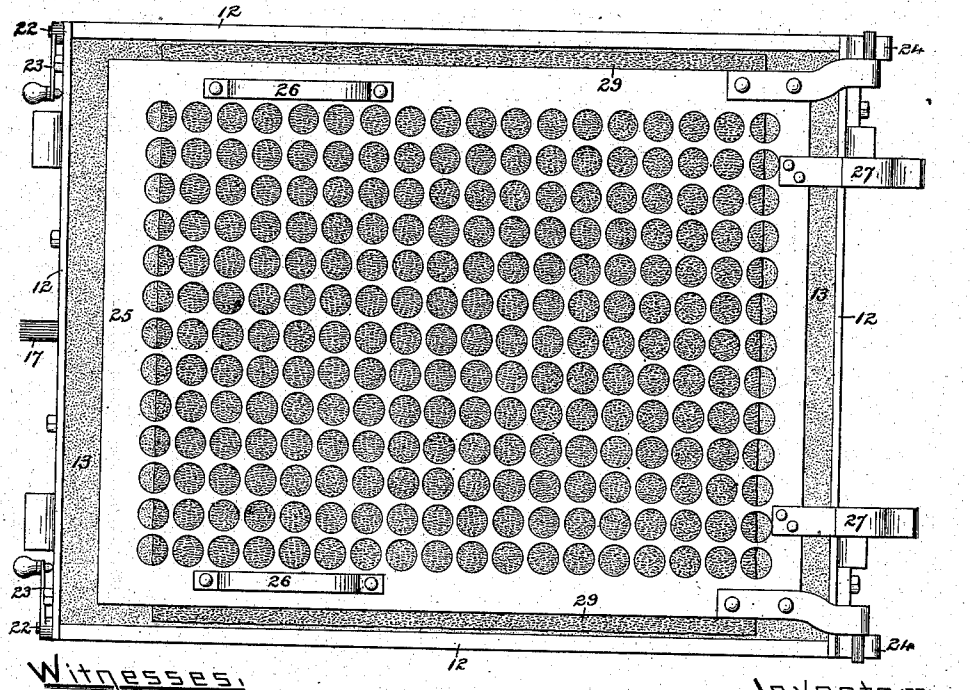


Fig. 1.



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UNITED STATES PATENT OFFICE.

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METHOD OF AND APPARATUS FOR DRYING MATRICES FOR STEREOTYPE-PLATES.

SPECIFICATION forming part of Letters Patent No. 296,049, dated April 1, 1884.

Application filed April 10, 1883. (No model.) Patented in England February 27, 1880, No. 863.

To all whom it may concern:

Be it known that we, GEORGE PEARCE, of Riversdale Road, Highbury New Park, Islington, in the county of Middlesex, England, and EDWARD HUGHES, of Anstey Road, Camberwell, in the county of Surrey, England, have invented certain Improvements in Method of and Apparatus for Drying Matrices for Stereotype-Plates, of which the following is a specification.

In those processes of stereotyping most commonly practiced at the present time, the matrix or mold from which the plate is cast is composed of paper, papier-maché, or similar material, and is usually obtained by placing several layers or sheets of such material provided with a suitable cementing substance and in a moist and plastic condition upon the face of the form, and then pressing or otherwise forcing the same against the form, so as to fill all the interstices in the faces of the type and produce an exact counterpart of the same. Before the matrix thus formed can be used in casting the plate it must be thoroughly dried and set, and this has usually been done before the matrix was removed from the face of the form. To accomplish this the matrix, after being formed as just described, was covered by one or more thicknesses of blanket, and the form was then placed upon a heated surface, so that the heat was communicated through the type to the matrix. This process was, however, found very objectionable in practice, in that it necessitated the heating of the form, which was found highly injurious to the type. In United States Letters Patent No. 128,285, a method has also been described in which the matrix is removed from the form while still in a moist condition, and laid back downward upon an iron bed, its face being then covered with a layer of sand which filled all the intaglio parts of the matrix and served the same purpose as the type in preventing the face of the matrix from becoming distorted during the drying operation which followed. The use of sand in this manner is objectionable, because it is sure to adhere, to a greater or less extent, to the face of the matrix, so that its removal therefrom after the matrix is dry requires some time and labor, and the element of time is, as is well known, of the greatest importance in the operation of stereotyping. The use of sand in this manner is also objectionable for other reasons.

It is the object of the present invention, among other things, to avoid this damage to the type, and at the same time avoid the delay and other inconveniences incident to the use of sand as just described. In the attainment of this object we have discovered that it is not necessary to fill the intaglio portions of the face of the matrix in order to prevent warping and distortion during the drying operation, and we therefore, after removing the matrix from the face of the form, effect the drying of the same by confining it between a heated surface and one or more thicknesses of blanket, thus avoiding the heating of the type, and at the same time the delay and annoyance incident to the use of sand upon the face of the matrix.

To these ends one feature of the invention consists in a method of drying the matrix, which consists in removing the same from the face of the form while still in a moist condition, and then confining the same between a heated surface and one or more thicknesses of blanket.

Another feature of the invention consists in a method of drying the matrix, which consists in removing the same from the form while in a moist condition, and then confining it between a layer of heated pulverulent material, and one or more thicknesses of blanket.

The invention also embraces an apparatus for carrying said methods into practical operation, and also various details of construction and combinations of parts, all of which will

be hereinafter fully explained and particularly pointed out.

In the accompanying drawings, Figure 1 is a plan view of a matrix-drying apparatus embodying the mechanical features of the invention. Fig. 2 is a tranverse vertical section of the same. Figs. 3 and 4 are views of details, to be hereinafter referred to.

Referring to said figures, it is to be understood that 10 represents a smooth iron plate or bed of suitable thickness and of a size somewhat greater than that of the matrix to be dried. This plate is supported in any convenient manner upon a suitable frame, 11, and is surrounded by a narrow rim or flange, 12, within which is placed a thin layer of fine sand or other pulverulent material, 13, covering the entire top of the plate. The frame 11 is provided at a suitable distance below the plate 10 with a series of brackets, 14, or other suitable means for supporting a series of gas-pipes, 15, which are provided with burners 16, arranged at such distances from each other as to impart a uniform or nearly uniform degree of heat to all parts of the plate 10 and sand 13. The pipes 15 are fed from a main pipe, 17, which is provided at some convenient point with a cock, 18, (see Fig. 4,) around which is a small by-pass, 19, provided with a cock, 20, the purpose of which will hereinafter appear.

The supporting-frame 11 will preferably, as shown in Fig. 2, be composed of two solid plates, which will serve to inclose upon two sides the space beneath the plate 10. The remaining sides of said space will be inclosed by plates, as 21, mounted upon rock-shafts 22, which are provided with cranks 23, by the movement of which the plates can be turned to the position shown in Fig. 2, so as to entirely inclose the space beneath the plate 10 and confine the heat from the burners 16 therein, or to a horizontal position, so as to allow the heat to escape. A small space, 30, will be left beneath the plates 11 and 21, through which air can pass to feed the burners. The frame 11 is provided upon one side with a pair of brackets, 24, to which is hinged a perforated plate, 25, slightly smaller than the plate 10, the purpose of which will hereinafter appear. This plate will preferably be provided with one or more handles, 26, by which it can be raised, and with stops, as 27, for limiting its backward movement, as indicated by dotted lines in Fig. 2.

In drying matrices according to the present method, the plate 25 is turned back to the position shown in dotted lines in Fig. 2, and the sand 13 is spread to a uniform thickness over the plate 10. This will be most conveniently accomplished by passing a straight edge, as 28, back and forth over the sand, as indicated in Fig. 3. The cock 18 will then be opened and the burners 16 lighted. When the plate 10 and sand 13 have been heated to the proper degree, which will be about 212° Fahrenheit, the cock 18 may be closed and the cock 20 opened. This will serve to very much reduce the amount of gas fed to the burners; but after the plate and sand are once heated a small amount of gas will be sufficient to maintain them at the required temperature. The matrix having been formed in the usual manner, as hereinbefore set forth, will then be removed from the face of the form and placed in its moist condition, face uppermost, upon the sand 13. One or more layers (the number depending upon the quality and thickness) of loosely-woven woolen blanket, 29, will then be laid upon the face of the matrix, and the plate 25, which is of sufficient weight to hold the matrix in position and prevent it from wrinkling or curling during the drying, will be turned down to the position shown in Figs. 1 and 2. The matrix will be allowed to remain in this position until thoroughly dried and set, which will usually take from one and a half to two minutes. The steam generated from the moisture in the matrix during the drying process will pass freely through the blanket and the perforations in the plate 25 and escape. When the drying is complete, the plate 25 and the blanket will be removed, and the matrix will then be used to cast the plate in the usual manner.

The matrix, instead of being placed upon the sand face upward, may be placed thereon face downward, in which case a sheet of thin or tissue paper may be interposed between the sand and the matrix, to prevent the sand from adhering to the latter.

In some cases it will be found practicable to dispense with the sand and lay the matrix directly upon the plate 10; but usually it will be found preferable to use the sand.

It will also be seen that steam or other heat may be used in place of the gas-jets for heating the apparatus.

What we claim is—

1. The herein-described method of drying the matrix for a stereotype-plate, which consists in removing said matrix from the face of the form while in a moist condition, and then confining the same between a heated surface and one or more thicknesses of blanket, substantially as described.

2. The herein-described method of drying the matrix for a stereotype-plate, which consists in removing said matrix from the face of the form while in a moist condition, and then confining the same between a layer of heated pulverulent material and one or more thicknesses of blanket, substantially as described.

3. In an apparatus for drying matrices, the combination, with the plate 10, and means for heating the same, of the blanket 29 and perforated plate 25, all substantially as described.

4. In an apparatus for drying matrices, the

combination, with the plate 10 and means for heating the same, of the blanket 29 and layer of pulverulent material 13, substantially as described.

5. In an apparatus for drying matrices, the combination, with the plate 10 and means for heating the same, of the blanket 29, layer of pulverulent material 13, and perforated plate 25, all substantially as described.

6. In an apparatus for drying matrices, the combination, with the plate 10 and solid plates 11, of the movable plates 21 and the burners 16, substantially as described.

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